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Economic and Social Commission for Asia and the Pacific Committee on Disaster Risk Reduction

Third session Bangkok, 27-29 November 2013 Item 4 of the provisional agenda^{*} **Mainstreaming disaster risk reduction into development strategies**

Building resilience to disasters: mainstreaming disaster risk reduction into development strategies

Note by the secretariat

Summary

The present document provides an overview of issues facing member States in the light of more frequent and serious natural disasters affecting Asia and the Pacific. These extreme events have devastating consequences on development. They also highlight the interlinkage among economic, social and environmental factors in the development process, and thus result in the need to apply comprehensive solutions into development strategies. The present document contains a review of the benefits and costs of mainstreaming disaster risk reduction into the broader framework of multisectoral socioeconomic development and presents strategic approaches for building resilience into the economy, critical sectors and supply chains, and ecosystems, as well as into communities.

The Committee is invited to discuss the various good practices in mainstreaming disaster risk reduction into a range of sectors for national development planning and budgeting. The Committee may also wish to explore a set of regional principles in order to equip member States with references when undertaking such mainstreaming, as well as to provide the secretariat with guidance on its future strategic direction.

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I. Introduction

1. The world is facing an unprecedented era characterized by rapid economic growth, urbanization and environmental degradation coupled with an increasing number of extreme weather events. Globally, disasters caused more than 3.3 million deaths and \$2.3 trillion in damage between 1970 and 2010, with direct economic losses of \$100 billion over the last three consecutive years. An approach to investment that does not appropriately take into account disaster risk will greatly increase the potential for losses in the future.¹ One estimate indicated that the world would suffer \$168 billion in losses annually by 2100 from disasters, or up to \$236 billion per year, when factoring in climate change impacts.²

2. In Asia and the Pacific, during the past decade, disasters affected 2.5 million people and resulted in almost 800,000 deaths. As the most disaster-prone region in the world, a person living in Asia and the Pacific is almost twice as likely to be affected by a disaster as a person living in Africa, almost six times more likely as compared to a person living in Latin America and the Caribbean, and 30 times more likely than a person living in North America or Europe. This trend is also reflected in the region's economic losses — in 2011, losses in Asia and the Pacific represented 80 per cent of the global disaster-related losses, even though the region only generated a quarter of the world's gross domestic product (GDP).

3. Rapid and uncontrolled urban expansion with poor land use planning and management and environmental degradation is a major factor contributing to higher disaster risk in the region. This trend is expected to continue, with 55 per cent of Asia expected to be urbanized by 2030.³

¹ United Nations International Strategy on Disaster Risk Reduction, *Global Assessment Report on Disaster Risk Reduction 2013* (Geneva, 2013).

 ² World Bank, *Disaster Risk Management: Building a Safe and Resilient Future for All* (Washington D.C., 2011).

³ United Nations Department of Economic and Social Affairs, *World Urbanization Prospects: The 2011 Revision* (New York, 2012) pp. 10-12.

4. Disaster risk is being further aggravated by the impacts of climate change, which is predicted to generate more frequent and extreme disasters. Combined with other shocks, such as financial crises, the development agenda of the region is poised to face serious compounding challenges.

5. Building resilience is one of the most important current challenges for Asia and the Pacific. With an ever more complex society having deep interlinkages at the local, national, regional and global levels, many policymakers recognize the need to move away from addressing single issues to treating economic or social sectors holistically.

6. The present document contains a review of the region's trends in disaster risk reduction in the light of multiple shocks, as well as, highlights of key issues related to mainstreaming disaster risk reduction into development planning, proposed strategic approaches for building resilience to disasters and areas for future work for the consideration of the Committee.

II. Impacts of natural disasters on inclusive development in Asia and the Pacific

7. According to *The Asia-Pacific Disaster Report 2012*, the vulnerability and exposure of people and assets to disasters is rising in the countries of Asia and the Pacific. Losses have grown more than 16 times since 1970 in the region, while GDP increased only 13 times.⁴

8. Relative to the size of their economies, the devastation from disasters is more extensive in low-income countries when compared to developed countries. Least developed countries and small island developing States are particularly vulnerable. The estimated damage and loss from Cyclone Nargis in Myanmar was 20 per cent of GDP. Damage from an earthquake and tsunami in Samoa in 2009 amounted to 20 per cent of the country's GDP and hindered its graduation from the least developed country status to that of a middle-income country. In relative terms, Samoa was also the hardest hit country in the world in 2012 as the damage caused by Cyclone Evan represented 19.9 per cent of the country's GDP.⁵

9. As disasters occur and economies falter, social spending is threatened. It is the poor and marginalized, particularly women, children, the elderly and persons with disabilities, who are the most vulnerable and hit hardest by disasters. Thus, every effort must be made to protect development gains that benefit the poorest and most vulnerable.

10. All segments of society are affected by disasters, but the losses are greatest among small-scale business owners and informal sectors, marginal farmers and poor households, as they often lack buffers against sudden, external shocks. Small and medium-sized enterprises are particularly at risk, as a single disaster can wipe out all or major parts of business capital. In *The Asia-Pacific Disaster Report 2012*, it was reported that Typhoon Ketsana caused \$58 million in damage in the Lao People's Democratic Republic, with 50 per cent of the losses borne by small farmers. The typhoon also caused \$4.3 billion in damage in the Philippines, with 90 per cent of the losses

⁴ United Nations Office for Disaster Risk Reduction and Economic and Social Commission for Asia and the Pacific, *Reducing Vulnerability and Exposure to Disasters: The Asia-Pacific Disaster Report 2012* (ST/ESCAP/2639).

⁵ USAID, "Natural disasters in 2012", *Cred Crunch*, No. 31 (March, 2013). Available from http://reliefweb.int/sites/reliefweb.int/files/resources/CredCrunch31.pdf.

sustained by poor urban households.⁴ In Cambodia, the same typhoon affected agriculture, livestock and fisheries, which are the economy's most productive sectors, primarily supporting the livelihoods of small and marginal farmers.⁶ In Pakistan, extensive floods in 2010 resulted in \$9.7 billion in losses, with 70 per cent of them absorbed by poor households and small and marginal farmers.⁴ In Thailand, poor agricultural labourers and daily wage earners in poor urban areas were severely affected by the 2011 floods, with at least \$3.6 billion in lost wages incurred by vulnerable populations with limited social protection.⁷

11. Severe and overlapping disasters and other shocks can derail countries from their development path, leading to a permanent loss in output by destroying capital stock, reducing fiscal space, increasing debt and eroding people's resilience. Small economies tend to be particularly vulnerable because they are less diversified and already under greater economic strain.⁸

12. ESCAP research shows that disasters can adversely affect the achievement of the Millennium Development Goals. When a portion of the GDP is lost because of a disaster, the attainment of the Goals are set back, as the activities allocated for poverty reduction may be diverted towards recovery and reconstruction. A series of major disasters can have cumulative negative effects on the economy of an affected country. For instance, the key productive agriculture and livestock sector of Pakistan, which accounts for 21 per cent of GDP, was severely affected by a series of devastating disasters, including an earthquake in 2005, cyclone in 2007 and extensive flooding in 2010 and again in 2011. As 70 per cent of the population is directly or indirectly dependent on agriculture, many of whom live below the poverty line, these disasters have had a devastating impact on poverty eradication efforts, which have been captured by poverty-related Millennium Development Goals indicators. Similarly, the damage caused by the earthquake and floods to schools and other infrastructure also have affected the education-related Millennium Development Goals indicators.⁴

13. In addition to natural disasters, economies can be affected by the other external shocks, such as global financial crises, volatile and high oil and food prices, and fluctuating performances of key sectors of the economy. Disasters can be detrimental to development efforts as financial resources intended for economic and social development need to be diverted for emergency relief and livelihood support to the affected population, along with recovery and reconstruction.⁴

III. Investing in disaster risk reduction

14. A decade after the devastating Indian Ocean Tsunami and adoption of the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters,⁹ Asia-Pacific countries have progressed towards a more proactive paradigm of disaster risk reduction and

⁶ Cambodian National Committee for Disaster Management, "Cambodia post-Ketsana disaster needs assessment", Report (Phnom Penh, 2010). Available from www.gfdrr.org/sites/gfdrr.org/files/GFDRR_Cambodia_PDNA_2010_EN.pdf.

⁷ World Bank, Government of Thailand, and Global Facility for Disaster Reduction and Recovery, *Thai Flood 2011: Rapid Assessment for Resilient Recovery and Reconstruction Planning* (Bangkok, World Bank, 2012).

⁸ Building Resilience to Natural Disasters and Economic Crises (United Nations Publication, Sales No. E.13.II.F.3).

⁹ A/CONF.206/6 and Corr.1, chap. I, resolution 2.

preparedness. The reactive disaster management practice — responding to disasters as they happen without prior sound investment in disaster risk reduction and preparedness — is no longer appropriate. The Framework provides the impetus and momentum for building informed intentions to reduce disaster risks by placing it as a policy priority with the corresponding institutional strengthening. However, *The Asia-Pacific Disaster Report 2012* points to a gap between the intended policies and the actual practice in practical and local action towards addressing the underlying risk factors.⁴

15. Countries in the region, in general, are aware that investing in disaster risk reduction and building resilience are crucial for achieving sustainable development and that disaster risk should be considered in development planning and national budgeting. Only a little more than half of them have systems in place to implement the integration, and only slightly more than one-third have reported that funds have been allocated for risk reduction and prevention.¹⁰ Notably, Bangladesh, Indonesia, Japan and the Philippines are among the countries that have taken positive steps to mitigate the risks. These steps have resulted in lower human and economic losses from disasters.

16. There is still much to be done to expand and strengthen investment in the multisectoral development programmes, especially investment that is explicitly directed towards reducing risks. The extent of resources required for mainstreaming disaster risk reduction in the different hazard and socioeconomic contexts of a country have yet to be fully understood. However, it is generally accepted that mainstreaming disaster risk reduction is only efficient when public investments are strategically coupled with resilience-building programmes in critical sectors of the economy.

17. Cost-benefit analysis is useful for governments seeking to compare the cost-efficient alternatives of projected development investment scenarios with the projected aggregate benefits accrued from integrating disaster risk reduction. For example, the benefits of weather forecasts exceed costs, on average, by a factor of 5:1 or 10:1, with some countries reaping larger benefits.¹¹ Such cost-benefit analysis helps government make the case for investment in integrated flood control combined with cyclone preparedness, coastal zone management and food security programmes.¹² Resilience-building components could also be assessed and integrated into the social, productive, infrastructure and cross-cutting sectors of development planning.

18. Examples of cost benefit analysis with regards to disaster risk reduction include the following:

(a) An ex ante investment made in Fiji in a local level flood warning system for the town of Navua, is estimated to save \$3.7 to \$7.3 for every dollar spent;

(b) A mangrove planting programme in Viet Nam benefited the local coastal communities by spurring a number of economic activities while

¹⁰ United Nations Office for Disaster Risk Reduction, From Shared Risk to Shared Value – The Business Case for Disaster Risk Reduction. Global Assessment Report on Disaster Risk Reduction (Geneva, 2013).

¹¹ World Bank, "Weather and climate services in Europe and Central Asia", Working Paper No. 151 (Washington D.C., World Bank, 2008).

¹² Bangladesh, Ministry of Food and Disaster Management, "Food security and disaster management programme of Bangladesh" (n.d.). Available from: www.dmic.org.bd/dmin/?q=system/files/FS%26DMP_DG_DMB_paper.pdf (accessed 2 September 2013).

building environment resilience to disasters. In monetary terms, it demonstrated a high cost-benefit analysis with a return of investment as high as \$55 for every dollar spent in terms of ecological benefits;

(c) If an advanced weather prediction system had been in place when Cyclone Sidr struck Bangladesh, forecast lead-times could have been extended to five days, and the areas at risk could have been identified with greater accuracy, resulting in benefits of about 25 times the cost of the system due to a significant reduction in damage. In addition, there would have been a reduction in the loss of human life and affected population.¹³

19. The ESCAP-supported Regional Integrated Multi-hazard Early Warning System (RIMES) has extended similar economic benefits for infrequent events at the subregional level. The project has provided evidence that a regional collective system for tsunamis and hydro-meteorological hazards monitoring and early warning would require only slightly more than 20 per cent of the cost of these systems being developed by countries individually.¹⁴

20. The cost-benefit tool requires a quantitative analysis of benefits, some of which are not quantifiable and therefore should be viewed as part of a wider qualitative assessment. Developing better evidence from innovative efforts, creating standards for systematic investment and benefit data, and improved tracking of investment for reducing risks will contribute to strengthening the cost-benefit analysis to help improve the investment climate for national governments and international donor interests.

IV. Strategic approaches for mainstreaming disaster risk reduction into a development strategy

21. In the present document, it has been established that natural disasters have significant consequences on development. ESCAP research further shows that the countries of the Asia-Pacific region will be increasingly exposed to more frequent, larger and overlapping natural disasters amid other shocks. Such events highlight the interlinkage among economic, social and environmental factors in the development process, and thus result in the need to apply comprehensive solutions into development strategies. Governments need to tackle disaster risks not as managing a discrete, one-time event, but as part of an overarching strategy to build resilience to shocks by mainstreaming disaster risk reduction into development plans, poverty reduction frameworks and national budgets.

22. It is important to instil a culture of applying disaster risk assessment as an analytical and decision-making framework at all levels of government and across all sectors so that the practice of disaster risk analysis would become another regularly used decision-making tool, similar to that of environmental impact assessments, cost-benefit analyses and social impact assessments.

23. Disaster risk reduction measures may have to be mainstreamed gradually by planning and finance authorities into all sectors of medium and

¹³ Thomas J. Teisberg abd Rodney F. Weiher, "Background paper on assessment of the economics of early warning systems for disaster risk reduction", submitted to the World Bank Group, Global Facility on Disaster Risk Reduction (2009). Available from www.gfdrr.org/sites/gfdrr.org/files/New%20Folder/Teisberg_EWS.pdf.

¹⁴ A.R. Subbiah and others, "Socio-economic benefits of early warning systems", (2010, unpublished).

long-term socioeconomic development strategies at all levels of government and across relevant ministries. It may be more realistic to aim for an incremental and iterative process of disaster risk reduction when taking into account the country context, specific needs and capacities. Depending on country circumstances and hazard exposure, governments may need to identify key sectors into which disaster risk reduction should be prioritized. In each of those sectors, actions need to be clearly defined in terms of investments, institutions and incentives. Some of those critical sectors and crucial interventions are discussed in the following sections.

A. Building economic resilience to disasters

24. A comprehensive framework must be incorporated in a country's macroeconomic framework. It should include both annual budgets and longer-term public investment plans. This is especially the case when the country in question is vulnerable to frequent natural disasters. Macroeconomic management of disasters has two dimensions. The first concerns policy choices related to ex ante disaster risk management. The second concerns ex post disaster relief and reconstruction — to restore the economy to its predisaster long-run growth path with the least disruption to the economy.

25. Ex ante disaster risk management. Ideally, an ex ante macroeconomic policy framework that focuses on long-term investments in disaster risk reduction should have four distinct components: risk identification; risk mitigation; risk-preparedness; and financial protection. The first component relates to identifying risks and social vulnerabilities. It is important to note that risk has structural and social dimensions, both of which must be identified. Empirical studies suggest that a society that makes adequate provisions for social safety nets is much better prepared to face a natural disaster than the one that fails to make such provisions. The second component relates to risk mitigation, which includes, among other things, regulatory and institutional reforms, such as land management, strengthening of building codes, investments in retrofitting existing buildings, and investments in dams in drought-prone areas. The third component relates to risk preparedness, which includes upfront investments in early warning systems, contingency planning and public training about risk prevention. The fourth component relates to financial preparation. It has two distinct dimensions, namely self-insurance and risk transfer.

26. *Ex post disaster response.* Faced with a natural disaster, governments can draw on reserves or seek new finance or embark on a macroeconomic adjustment programme. Some countries will be able to draw on reserves or be able to pay the costs out of current budgets. They can also establish with lenders "contingent credit" lines that enable them to borrow in the event of a disaster. Low-income countries should be able to rely on concessional aid or grants from international donors. In addition, they might assume an increase of remittances from workers abroad to families in distress.

27. In principle, a government could also increase commercial borrowing, but this may be difficult. Even countries that have access to international capital markets may find foreign borrowing expensive, especially after a disaster. If so, they may have to make adjustments by modifying fiscal policy, such as redirecting funding from planned projects, cutting discretionary expenditure or raising taxes on high-income earners. The choices depend on the current state of the economy; if the economy is overheated with a risk of inflation, the government might consider imposing a temporary tax on high-income citizens in the form of a reconstruction levy.

28. *Monetary policy after a natural disaster presents a classic dilemma*. How to use the same policy to reconcile two competing objectives, namely maintaining price stability while restoring pre-disaster levels of output and employment. Some policymakers give priority to price stability and therefore tighten the money supply, but this could worsen unemployment and poverty. In fact, many economies are operating far below optimum levels of output, so fears of inflation may be unfounded.

29. As recommended in the ESCAP theme study for the sixty-ninth session of the Commission, when a disaster is occurring, it is best not to mechanically pursue prudential norms of macroeconomic stabilization. Instead, the overarching aim should be to arrest the spread of the shock to the real economy, to labour markets and above all to the poorest and most vulnerable.⁸ Moreover, even in "good times", there is no unique threshold of stability for each macroeconomic variable — for growth, inflation, the fiscal deficit, the current account deficit or the level of public debt. Rather, there is a continuum of thresholds for various combinations of those key variables. Developing countries should thus not have an overly mechanical interpretation of macroeconomic prudence. While maintaining short-run stability, they should instead be guided by the goals of long-run economic development and poverty reduction. This requires striking a balance between long-term development and short-term macro stability.

30. Balancing ex ante vs. ex post spending. While it is well understood that prevention is better than a cure, in practice, there are many obstacles to this approach. Countries may not consider risk reduction as an efficient investment. This is indeed the case when the effects of disasters are relatively small and can easily be coped with, but there can also be situations of "moral hazard". Low-income countries may be tempted to underinvest in prevention if they believe that external post-disaster assistance will always be forthcoming. One of the biggest hurdles is the difficulty in comparing the immediate and real costs of prevention with the potential costs of recovery and rehabilitation. Arriving at the best balance between investment in risk reduction and in recovery and rehabilitation is not easy. Determining public priorities in disaster risk reduction therefore benefit from extensive stakeholder participation in national planning and budgetary processes.

31. Countries that have high risk to disasters are giving greater priority to disaster risk reduction in order to minimize ex post relief and reconstruction spending. For example, in Japan, budgetary allocations are made for four broad categories of risk reduction and recovery, namely scientific technology research, disaster prevention and preparedness, national land conservation

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